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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/659,286

09/11/2003

Min-Ho Kim

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5541

30593

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06/03/2008

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EXAMINER

GHEBRETINSAE, TEMESGHEN

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

06/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/659,286	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> Temesghen Ghebretinsae	<b>Art Unit</b> 2611	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/7/05</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

### DETAILED ACTION

1. It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

1. Application number (checked for accuracy, including series code and serial no.).
2. Group art unit number (copied from most recent Office communication).
3. Filing date.
4. Name of the examiner who prepared the most recent Office action.
5. Title of invention.
6. Confirmation number (See MPEP § 503).

### *Information Disclosure Statement*

2. The IDS filed 1/7/05 has been considered by the examiner.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The specification on paragraph {0057} states that “the method and apparatus for forming channel equalization according to the exemplary embodiments of the present invention may be more advantageous than a conventional channel equalizing method of updating coefficients using all filter cells.(emphasis added)

6. However, claims 1, 4,6,10 and 11 seems to imply that “**updating** said at least one coefficient with the derived optimum value to provide an **updated coefficient value**; and comparing **the updated coefficient value** to a given threshold **to eliminate**

**at least one of the filter cells from having to be updated; or “the updated coefficient values** are compared to a threshold and the number of filter cells with **coefficients to be updated** is reduced based on the comparison”. It is not clear how a number of filter cells which require updating in channel equalization as claimed are reduced if **all** the filter cells are **updated** and **the updated coefficients** are compared to a threshold? How is it possible that power consumption is reduced if **all the filter cells** coefficients are **updated** and compared to a threshold?

7. In claim 1, “the number of filter cells” lack clear antecedent basis.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 3, 6,12,14 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen (US 6,483,872).

10. Nguyen discloses a storage means storing coefficients related to data values of a received data sequence, at least one data value of said received data sequence received in one of a plurality of filter cells, each filter cell having a coefficient related to the stored data value

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**“Equalizer 500 includes two digital filters: a feed forward filter 502 and a feedback filter 504. Feed forward filter 502 is a finite impulse response (FIR) filter while feedback filter 504 is an infinite impulse response (IIR) filter.**

**the filters may contain different number of coefficients depending on the implementation or application. Each filter 502 and 504 may contain any number of coefficients. For example, filters 502 and 504 may contain 32 coefficients with 12 coefficients in filter 502 and 20 coefficients in filter 504.”**

update means updating said coefficients based on at least one parameter;

**“If the equalizer is performing an initial run, a determination is made as to whether the error threshold is acceptable (step 906). The error threshold in the depicted example is also referred to as an "optimum threshold". An optimal threshold in the depicted example is 0.1. The optimal threshold may be selected a number of ways. For example, the optimal threshold may be selected to be a number when a SNR is at an acceptable level through the system or a decodable in the system. If the optimum threshold is acceptable, the coefficients are stored (step 908) with the process then returning to step 904.”**

compare means comparing said updated coefficients to a threshold; and selecting

means selecting filter cells of selected coefficients based on said comparison.

**“With reference again to step 906, if the threshold is not acceptable, the process then performs normal iterations to identify new coefficients (step 910) with the process then returning to step 906 to determine whether the new coefficients have an acceptable threshold.”**

**“A determination is then made as to whether the acceptance threshold has been reached (step 916). The acceptance threshold is an error threshold that will result in the set of coefficients being selected for use in the filter.”**

As claimed in claims 113,6,12 and 14. See fig.5 and 9.

### ***Allowable Subject Matter***

11. Claims 2, 7-9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. Claims 4-5,10-11,13,15 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temesghen Ghebretinsae whose telephone number is 571-272-3017. The examiner can normally be reached on Monday-Friday from 8 to 6. The examiner can also be reached on alternate.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammed, can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Temesghen Ghebretinsae  
Primary Examiner  
Art Unit 2611

13. /Temesghen Ghebretinsae/

14. Primary Examiner, Art Unit 2611 5/28/08.

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